Maine STEP-UP Program Agreement
LEADERSHIP TRACK

National Semiconductor

PURPOSE

The greatest challenge of the 21st century will be using earth's resources in sustainable ways to meet human needs. Through its own natural cycles, the earth provides clean water and air, fertile soils, and a myriad of plants and animals, all of which are essential to sustain life. We must find ways of producing products and providing services that model nature's cyclical design and sustain its productive capacities. In fact, where we can we must restore those capacities diminished by past misuse.

Environmental regulatory programs of the last 30 years have done much to clean and protect our waters, air and land. Now, new approaches to environmental protection are needed if continuous improvements are to be realized.

The Maine Department of Environmental Protection and National Semiconductor Corporation have agreed to explore new ways of protecting the environment that go beyond regulatory compliance. National Semiconductor Corporation commits to continuously improve its business practices to protect people and the environment. National Semiconductor Corporation will publicly report on its progress to inspire other businesses to seek improvement in their own environmental performance.

The Maine Department of Environmental Protection commits to vigorously assist National Semiconductor Corporation on its "climb up the mountain"—accepting the challenge—to find environmentally sustainable ways of doing business. The Goals Toward Sustainability set forth in Section 2. B. in this agreement are for the "Pathways" described in the "Climbing the Mountain" diagram found in the Department's A Guide for Your Business: Smart Production and the Maine STEP-UP Program.

1. INTRODUCTION

National Semiconductor Corp of Maine (NSME) is a manufacturing location for National Semiconductor Corporation (NSC) of Santa Clara California. NSC and all its locations are committed to the journey toward sustainable manufacturing. NSME operates a world-class semiconductor manufacturing facility in South Portland where it employs approximately 600 Maine citizens. It includes a design center where engineers create innovative products for information appliances. The manufacturing operation employs approximately 530 people producing state-of-the-art integrated circuits using advanced CMOS process technology.

National Semiconductor manufactures silicon wafers sized at 8 inches in diameter. Each semiconductor manufactured goes through the same general process steps, but the complexity and structural makeup between the products are slightly different. Oxide and metallic layers are built up on the blank wafers with changes or additions in chemicals or process parameters to build the various layers to the required specifications. The manufacturing processes include repeated batch operation steps such as pre-cleaning, doping, photo mask development, metal application, etching, chemical mechanical polishing, and cleaning.

On the journey toward sustainability, NSME embraces programs such as the Maine STEP-UP Program and EPA's Performance Track Program as opportunities to further NSME's sustainability efforts. NSME commits to the Maine Department of Environmental Protection to strive toward sustainability goals for its business with the assistance of the Department, which will provide technical services and recognition for achievements made by NSME under the STEP-UP Program Agreement during its three-year term. The Department will assign a senior staff person to work with NSME during the design and implementation of the agreement.

2. PERFORMANCE COMMITMENTS

A. Environmental Business Practices

- **Compliance Status** - NSME is regulated by local, state, and federal environmental regulatory agencies. The facility currently holds the following environmental permits: Maine DEP Air Emissions Permits A-698-71-L-R, Industrial User Wastewater Discharge Permit 7A with the City of South Portland, Storm Water Multi-Sector Permit MER 05A724, Biomedical Waste Generator Registration #2042, Site Location of Development Permit L-7458-26, EPA Hazardous Waste Generator ID # MED001098458.

  NSME has a program of internal and external audits to ensure it remains compliant with all laws, regulations and permits. NSME has a program where the EHS professionals are required to participate in industry associations to maintain their technical expertise. The EHS professionals are also required

to attend external training every year in their area of expertise or related EHS training.

- **Environmental Management Pathway To Sustainability** –
  In 1997, NSC committed to an Environmental Management System consisting of 38 Environmental Health and Safety Standards for all worldwide manufacturing locations. NSC began annually monitoring its performance to these standards, while simultaneously making the standards more demanding. In June 2001, NSME committed to become certified to the International Standards Organization Environmental Management System Standard 14,001 as well as becoming independently certified to the OHSAS standard 18,001. In July 2002, Det Notske Veritas certified NSME as compliant with the ISO 14001 Environmental Management Standard and OHSAS 18,001 Health and Safety Management System. NSME will continue to do internal audits and use third party auditors to maintain its registration with the ISO 14001 and OHSAS 18,001 Standards.

  Regarding NSME's Environmental Health & Safety Policy, NSME and its employees are committed to the following principles. We will:
  Comply with all applicable EH&S laws, regulations & company requirements/policies;
  Conserve resources & reduce emissions;
  Create a safe and healthful work environment;
  Continually measure and improve our performance in these areas.

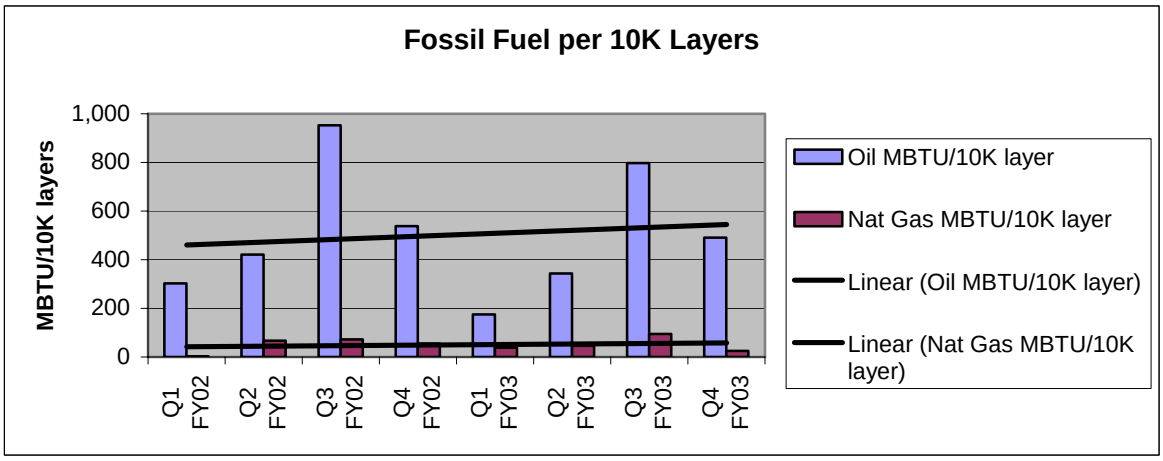
- **Workers and Community Pathway To Sustainability** - It is the policy of NSME to manage the company's activities in ways that reduce their impact on the environment. As such, environmental considerations, responsibility, and accountability are prime concerns for all employees. All employees have received environmental aspects training so they understand their own impact and that of NSME on the environment. Annually, the senior management team reviews the aspects matrices, along with other data, and set objectives and targets for improving environmental aspects for the upcoming year. Teams are chartered with the responsibility to achieve these goals.

  NSME will establish a Community Advisory Committee comprised of key business leaders, government leaders, and neighbors in the community to advise NSME on environmental aspects, impacts, objectives, targets, priorities and initiatives. NSME will establish the committee within six months after signing the STEP-UP agreement. NSME will use this forum for community feedback during the term of the STEP-UP Agreement and will invite the DEP STEP-UP coordinator to the meetings.

B. Goals Toward Sustainability

- **Energy Pathway** – NSME's Energy Pathway consists of fossil fuel conservation and electrical energy conservation. Fossil fuel is burned at the NSME in the six boilers on site, as well as the VOC incinerator. Electrical energy is delivered by the electrical utility and used for manufacturing and air conditioning. NSME began its commitment to energy reduction in the fall of 2002, shortly before it sent its letter of commitment to the STEP-UP program. NSME has aggressively worked to reduce its energy usage with many reductions already in place. NSME commits to reduce total electrical energy consumption per wafer mask layer an additional 20% over the next three years from its FY 2003 baseline, with half of the goal achieved in the first year. This will be done by continuing to make efficiency improvements in HVAC, chiller and compressed air systems.

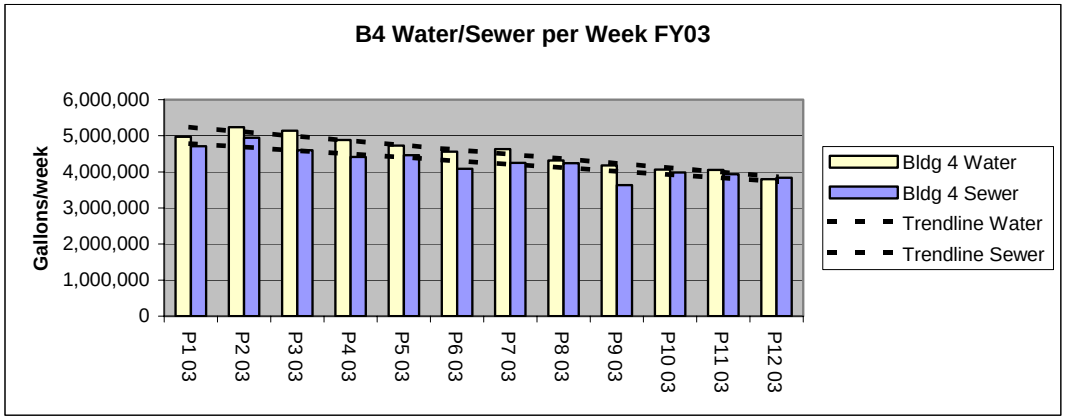
  NSME commits to reduce total fossil fuel energy consumption per wafer mask layer, by 5% per year or a total of 15% in the three years. This will be achieved while supporting an annual production growth rate of approximately 10% per year. This will be done by better management of the space heating needs in the facility.



  NSME will investigate pursuing renewable energy options for the electrical energy consumed by some portion of the manufacturing operations. NSME defines renewable energy to include wind, solar, hydro, and wood/biomass.

- **Air and Water Emissions Pathways To Sustainability** - Because NSME has fully enclosed most of its manufacturing tools, the VOC emissions produced are very low. The fuel used and the CO2 and NOx produced may outweigh the benefit of VOC destruction. NSME will perform a review of the CO2/NOx produced by the operation of the VOC abatement unit and with the DEP Air Bureau, determine if the abatement unit should continue to operate and/or to develop plans to reduce CO2/NOx production, if possible.

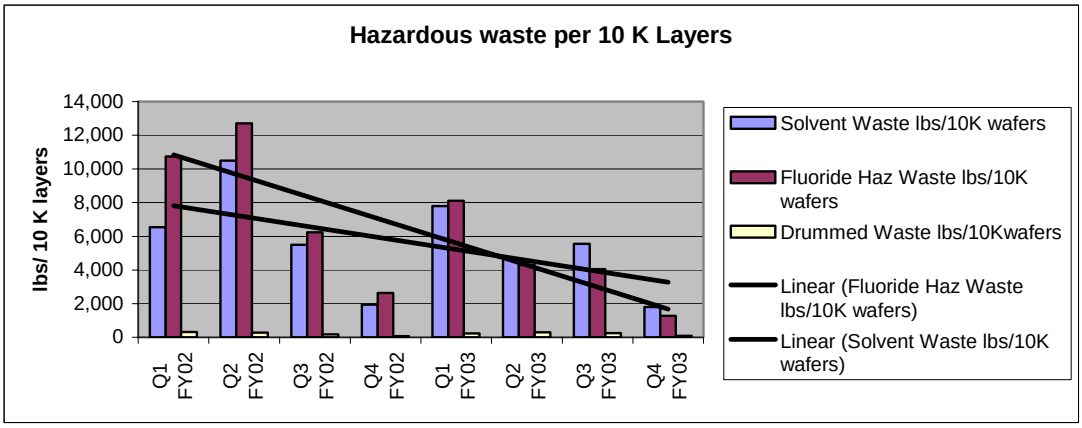
- **Inputs, Raw Materials, and Products Pathways To Sustainability** - NSME set a site objective for fiscal year 2003 to reduce its water usage by 20 % based on the average water used in FY01 and FY02. NSME was successful in recycling 120 gallons per minute or 63 million gallons per year. While continuing to increase production, NSME commits to reducing its water usage in FY04-FY06 by an additional 20%. At the end of FY06 NSME will have reduced its water demand by 130 million gallons per year.



- **Toxics Pathway To Sustainability** – The facilities engineering group must be able to accept whatever chemicals are put down the drains and operate the system in a way to ensure proper waste disposal. NSME has set up multiple drain systems for various chemicals. General solvent drains, as well as chemical specific solvent drains, are collected in hazardous waste storage tanks and disposed of at licensed Transfer, Storage and Disposal Facilities (TSDFs). A drain system for concentrated hydrofluoric acid drains to a second set of hazardous waste storage tanks and the contents are also disposed of at licensed TSDFs. Another drain system directs acids and bases, including some less concentrated hydrofluoric acid to an Acid Waste Neutralization system, which performs elementary neutralization prior to discharge to the South Portland Publicly Owned Treatment Works. Floor drains collect accidental spills, primarily water, which collects in tanks. These tanks are manually inspected prior to pump-out to one of the above drains. NSME has no drains that discharge directly to the environment.

  By carefully analyzing all the flows in the drains the engineers have been able to eliminate unnecessary draining of chemicals while reducing chemical usage and hazardous waste disposal. NSME will continue to reduce the amount of hazardous waste shipped off site for disposal. NSME intends to reduce the amount of hazardous waste per 10 K wafers layers shipped off-site (compared to FY03 Base Year) by 15% (5% per year). Most of the production tools have connections to multiple drains. Chemical wastes are directed to the appropriate drain during the production cycle. After draining, most tools use a flush with high purity water to ensure the production vessels are clean. By carefully selecting the time when the drain is switched, then the amount of flush water going to the chemical specific drains can be controlled.

Facilities Engineers have been successful in reducing the amount of water directed to solvent and fluoride waste drains by carefully controlling the time at which the drain valve changes. Continuing to reduce the amount of water drained to the hazardous waste stream, and employing other waste minimization and pollution prevention methodologies will attain reductions.



One of the drain systems that NSME has installed in the factory allows the collection of isopropyl alcohol (IPA). NSME will explore options for the reclaiming and recycling of waste solvents. The waste IPA is very pure, but contains 20-30% water, making it unusable to NSME in its present form. NSME, working with the ME DEP, will explore options of using the waste IPA as fuel for a production boiler, or purify it and sell it as a commercial grade of IPA. Because the waste IPA is a hazardous waste, NSME will obtain the appropriate hazardous waste treatment licenses prior to construction and start-up of any system to purify or use the IPA for fuel.

At NSME, chemicals are used in the processing tools, and they are also used in the abatement systems for those processing tools. The term “tools” as used in the semiconductor industry refers to those mechanical components of the manufacturing process that either deal directly with wet processing of wafers or deal with cleaning mechanical components that directly process wafers. Most tools apply a chemical “recipe” to wafers in an enclosed environment as part of the process of creating integrated circuits. Tools maintain the same role in processing, i.e. the wafer flow will always follow the same sequential order from tool to tool, and each tool will maintain the same source of inputs. Many tools process wafers in batches of 25, 50, 75 or 100 wafers. Tools will use approximately the same amount of chemical for each batch regardless of the number of wafers in the batch. In order to reduce the amount of chemical used, NSME works on each of the components of the chemical usage, process recipe, batch size, specific tool operation, and wafer yield.

The process-engineering group has been working on the two components of chemical use in recipes. The first is the elimination of excess chemical for a

process step. Historically, process steps, for example etching, have been controlled based on exposing the wafer to etch chemicals or gases for a fixed amount of time. This historical chemical use has been determined to be greater than the minimum required to achieve the desired endpoint. NSME has been systematically establishing measurable endpoints in the process, where the chemical or gas can be stopped as soon as the desired point is reached. A second focus of the process-engineering group has been to increase the batch sizes so that full or nearly full batches are processed. Combining two or more lots together so they may run as one batch does this. Another group at NSME, Equipment Engineering, is constantly trying to buy equipment, which has the lowest chemical need for the process step.

- **Workers and Community Pathway To Sustainability** - NSME has an active training program for our employees. Annually, the whole facility participates in an environmental aspects analysis and review. From this analysis, NSME determines which aspects are most significant and sets objectives and targets to reduce the environmental impact of the factory. Smaller teams are focused on working on more department specific aspects programs. For example, in the past year a small group has reclaimed 25,000 spent engineering wafers, and sold them to a company who will use them as feedstock for the manufacturing of photo voltaic cells.

C. Measurement Methods

- **Reporting Progress** - NSME will report progress semi-annually to the ME DEP. All reporting will be done based on NSME's fiscal accounting year, which runs from June to May.

- **Numerical Reporting** - NSME will normalize reporting based on its standard manufacturing unit. The standard unit is 8-inch diameter photo layers. The semiconductor wafer proceeds through various processing steps to complete the wafer. For each finished processing step, the wafer must be run through the photolithography tool. This creates the photo layers used as the standard unit. By using photo layers, the normalization can be used across the whole product line. The reporting to the DEP will also be consistent with our internal reporting, both in Maine and to our corporate office in Santa Clara, CA. NSME will provide two years of data as a baseline and three years of progress during the life of the agreement. NSME will use bar graphs to depict quarterly (for each current year) and annual (for each complete year) progress toward the following goals:

  Energy Pathway To Sustainability – Fossil fuel energy will be reported in millions of British Thermal Units (MMBTUs). Electrical energy will be reported in millions of kilowatt-hours (MKWH). Renewable energy, if used will be measured as percent of total energy in each category.

Input and Raw Materials Pathway- Water usage will be reported in gallons per week for each quarter.

Toxics Pathway To Sustainability – Hazardous waste will be reported in pounds, with a breakdown of solvent waste, fluoride waste and other waste. Toxics will be measured in pounds and will be the combination of chemicals, resists and gases. Toxics will include chemicals used for pollution abatement. Toxics will be reported as lbs/10K wafers.

- **Qualitative Reporting** - NSME will utilize text progress reports for the following goals:

  Air and Water Emission Pathway - Written reports on progress in these areas.

  Environmental Management Pathway To Sustainability – Maintaining ISO 14001 and OHSAS 18,001 Certification.

  Workers and Community Pathway To Sustainability – NSME will routinely communicate progress toward meeting its STEP-UP goals to employees via company bulletin boards, public information databases and normal communications means. NSME will include communication of STEP-UP goals and progress in its semi-annual community advisory meetings.

D. Public Involvement

NSME commits to establish a public advisory committee comprised of local and statewide leaders. NSME will meet with this group periodically to inform them of its efforts to achieve environmental sustainability by reducing pollutants and increasing energy efficiency and to solicit their input. NSME will involve the Maine DEP in all meetings. NSME will communicate STEP-UP goals and progress in community advisory meetings and utilize these meetings to receive feedback on its sustainability initiatives.

NSC currently maintains an EHS website for publicly communicating the company's progress toward EHS issues. NSME will add reporting on the progress toward sustainability to the portion of the site devoted to NSME.

E. Mentoring

As part of its journey toward sustainability, NSME continues to make itself available to all parties interested in joining the journey. To support mentoring under the STEP-UP program, NSME agrees to mentor one interested company for the term of this agreement upon mutual agreement between NSME and the yet to be identified company. Mentoring would probably be in the area of ISO 14,001 but other areas will also be explored.

F. Relationship

NSME will work closely with the DEP to achieve its sustainability goals by complying with regulatory requirements while working to find mutually agreeable solutions to issues that may stand in the way of achieving its environmental improvement goals.

Over the last three years NSME has been working with the Bureau of Remediation and Waste Management (BRWM) on the cleanup of historical contamination of the site. Consistent with the STEP-UP Program Agreement goals of making continuous environmental improvements and moving toward sustainability, including restoring capacities diminished by past misuse, NSME will make improvements in the management and clean-up of hazardous waste-contaminated soil and groundwater for which NSME is the responsible party. In order to make the process more efficient, NSME will develop soil handling procedures for the identification and handling of hazardous waste contaminated soils that are on the NSME site and the adjoining Fairchild Semiconductor site. The procedures will be subject to review and approval by BRWM. Through mutual agreement, NSME will replace and install additional ground water monitoring wells in support of the Western Avenue Widening Project pursuant to plans submitted on September 12, 2003, subject to review and approval by BRWM.

NSME requests that its DEP STEP-UP Program contact attend quarterly STEP-UP program meetings, at which progress toward sustainability goals will be discussed and adjustments made to NSME's performance goals as necessary. Maine DEP will make staff available to NSME for technical and regulatory assistance. This assistance will be provided consistent with existing State law and agency policy.

NSME will work closely with the Maine DEP to:
- exchange issues, ideas, and solutions with other STEP-UP Program members through periodic meetings
- share solutions with other businesses in Maine
- encourage other Maine businesses, particularly those doing business with NSME, to develop their own EMS programs.

Maine DEP expects to forego civil penalties for certain types of first-time violations discovered in the process of providing assistance or disclosed as a result of compliance audits performed by NSME when NSME corrects the non-compliant condition within the shortest practicable time period, and in all cases within 90-days of discovery. Violations excluded from this provision are those listed in Maine DEP's Small Business Compliance Incentives Policy, Section III (as amended February 14, 1996) and its Supplemental Environmental Projects Policy, Section V (as amended June 15 2000). Regular or necessary compliance

inspections performed as part of day-to-day business at Maine DEP are not subject to these provisions.

The Maine DEP will work closely with NSME to:
- provide a single, dedicated DEP STEP-UP Program contact
- make DEP staff available to NSME for technical and regulatory assistance. This assistance will be provided consistent with existing State law and agency policy.
- provide one media compliance inspection/technical assistance visit from at least one media program each year during the three-year term of the agreement. Applicable programs are hazardous waste, air, land/water, and P2.
- coordinate periodic meetings with other STEP-UP Program members to discuss environmental issues, exchange ideas, and explore solutions to environmental challenges.

G. Recognition

Maine DEP will recognize NSME's participation in the STEP-UP Program by including specific information on the STEP-UP web page maintained by the State, and in press releases from time-to-time to keep the general public informed of NSME's status in the program. NSME will also receive a Governor's Award for Environmental Excellence without the need for application when any Sustainability Goal detailed in this agreement is achieved.

3. REPORTING

NSME will submit semi-annual progress reports to the Maine DEP citing accomplishments toward achieving sustainability goals. The reports will utilize the reporting format described in Section 2. C above. In addition NSME will post summary updates on its web site at "http://www.nsc.com".
Maine DEP will report quarterly to NSME on its progress toward meeting its commitments outlined in Section 2. F above.

4. TERMINATION

Either party to this Agreement may terminate the participation of NSME in the STEP-UP Program with 30-days notice to the other party.
WITNESS here today, November 7, 2003 that the undersigned parties enter into this agreement.

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JOHN BALDACCI, GOVERNOR STATE OF MAINE	PAUL EDMONDS, VICE PRESIDENT NATIONAL SEMICONDUCTOR